

REMARKS

Claims 1-5, 8, 10-14, and 18 are now present in this application.

Claims 1 and 12 have been amended, and claims 6, 7, 9 and 15-17 have been cancelled without prejudice or disclaimer of the subject matter contained therein. Reconsideration of the application, as amended, is respectfully requested.

Fig. 3 stands objected to as failing to comply with 37 CFR 1.84(p)(5), because it includes reference numeral "S104" not mentioned in the specification. Accordingly, a corrected Fig. 3 is attached hereto, in which this reference numeral has been removed. Reconsideration and withdrawal of any objection to the drawings are respectfully requested.

Claim 12 is corrected by inserting "substrate" after "semiconductor". Reconsideration of the amended claim 12 is politely requested.

Claims 12 and 15-17 stand objected to for certain informalities. In view of the foregoing amendments, it is respectfully submitted that these informalities have been addressed. Reconsideration and withdrawal of any objection to the claims are respectfully requested.

Claims 9, 19 and 20 stand rejected under 35 USC 112, second paragraph. This rejection is respectfully traversed.

It is noted that claims 9, 19 and 20 have been cancelled without prejudice or disclaimer of the subject matter contained therein. Accordingly, the rejection under 35 USC 112, second paragraph is moot. Reconsideration and withdrawal of the 35 USC 112, second paragraph rejection are therefore respectfully requested.

Claims 1, 3-8, 10-12, 14 and 16-18 stand rejected under 35 USC 102(b) as being anticipated by NG, U.S. Patent 5,994,217. This rejection is respectfully traversed.

Claims 2, 13 and 15 stand rejected under 35 USC 103 as being unpatentable over NG in view of KIM et al., U.S. Publication No. 2002/0187631. This rejection is respectfully traversed.

Amended claim 1 recites a method of modifying conductive wiring, comprising: providing a semiconductor substrate; forming a first barrier on the semiconductor substrate; forming a conductive wiring on the first barrier; performing a thermal treatment on the semiconductor substrate; and **forming a second barrier on the conductive wiring after performing the thermal treatment."**

As mentioned in the amended claim 1 of the present application, the method of the present invention includes a thermal treatment performed before the formation of the second barrier. After the thermal treatment, the reflectivity of the conductive wiring is reduced significantly, benefiting a following photolithography process. In other words, since the anti-reflectivity requirement of the following photolithography process

can be met easily without an additional ARC layer, the major function of the second barrier is not to provide an anti-reflective ability but reduce the diffusion of the conductive wiring. Thus, some other materials can be chosen as the second barrier to provide a better performance of reducing the diffusion of the conductive wiring more effectively regardless the anti-reflective ability of the second barrier.

Regarding the Office action, NG only discloses a method with **an anneal process after forming a metal layer and an ARC layer** disposed on the metal layer. It is respectfully submitted that NG does not teach or disclose the possibility of performing **a thermal treatment before the ARC layer formation.**

Regarding KIM, only a Ti/TiN barrier is disclosed. Neither NG nor KIM discloses a thermal process performing before forming the barrier on the conductive wiring. Accordingly, it is respectfully submitted that the prior art utilized by the Examiner fails to suggest or disclose the method of the present application.

Furthermore, amended claim 12 of the present application discloses a nitrogen-containing gas treatment before forming the barrier, which is not disclosed in the prior art reference cited by the Examiner.

Accordingly, it is respectfully submitted that independent claims 1 and 12, as well as their dependent claims, are allowable over the prior art utilized by the Examiner. Reconsideration and

withdrawal of the 35 USC 102(b) and 103 rejections are respectfully requested.

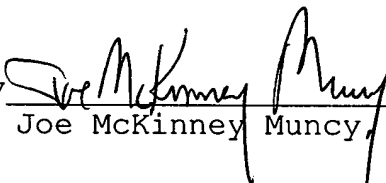
Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Corrected Fig. 3

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